



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,483	09/12/2003	Koji Mishima	2003_1305	6334

513 7590 07/12/2005

WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/660,483	Applicant(s) MISHIMA ET AL.	
	Examiner William T. Leader	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

AC

DETAILED ACTION

1. Receipt of the papers filed on April 15, 2005, is acknowledged. New claims 10-14 have been presented. Claims 1-14 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The amendment to claim 1 is considered to have overcome the rejection under 35 U.S.C. 102.

Claim Objections

4. Claim 14 is objected to because of the following informalities: claim 14 as written is a duplicate of claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. Claims 1-6, 11, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) in view of Reid et al (6,716,334) and Landau (6,261,433), all of record
6. Dubin et al, Reid et al and Landau are interpreted and applied as in the previous office action. Applicant has amended claim 1 to recite a step of bringing the substrate into contact with a processing liquid offering surface activity of a surface of the substrate. A similar limitation is recited in claim 7. As indicated in the previous office action, Reid et al teaches a step of

Art Unit: 1742

pretreatment prior to plating but does not describe this pretreatment in detail. Landau teaches a pretreatment with ultra pure water to ensure complete wetting which enhances the electroplating process and that surfactants improve wetting by reducing surface tension. Landau et al teach that suitable surfactants are organic compounds. See column 18, lines 40-52. This meets the limitation of claims 12 and 14. The inclusion of a step of contacting the substrate with a processing liquid offering surface activity prior to plating in Dubin et al would have been obvious because such a pretreatment would have enhanced wetting of the substrate as taught by Reid et al and Landau.

7. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid et al (6,716,334) in view of Landau (6,261,433) for the reasons given in the previous office action and in view of the following comments.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) in view of Reid et al (6,716,334) and Landau (6,261,433) as applied to claims 1-6, 11, 12 and 14 above, and further in view of Yamakawa et al (4,906,341).

9. Claim 10 recites that the substrate is repeatedly brought into contact with the processing liquid. The Yamakawa et al patent is directed to a process for electroplating a semiconductor workpiece. Yamakawa et al teach that bubbles may form on the surface of the semiconductor. To ensure more complete contact, the plating solution is preferably applied a plurality of times. See column 3, lines 36-64. The contacting of any of the processing solutions in the process

Art Unit: 1742

suggested by Dubin et al in view of Reid et al and Landau a plurality of time would have been obvious because more complete contact would have been ensured as taught by Yamakawa et al.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reid et al (6,716,334) in view of Landau (6,261,433) as applied to claims 7-9 above, and further in view of Yamakawa et al (4,906,341).

11. Yamakawa et al is taken as above. The contacting of any of the processing solutions in the process suggested by Reid et al in view of Landau a plurality of time would have been obvious because more complete contact would have been ensured as taught by Yamakawa et al.

Response to Arguments

12. Applicant's arguments have been carefully considered but are not deemed to be persuasive. At page 6 of the Remarks, applicant argues that the references do not suggest bringing the substrate into contact with the plating solution after performing at least one of removing the processing liquid from the substrate and drying the substrate. This argument is not convincing. Reid et al teaches that it is undesirable for excess water to enter the plating solution because the solution would be diluted (column 1, lines 29-34). This provides motivation for the removal of pretreatment solutions from the substrate prior to electroplating. If the pretreatment solution were permitted to remain on the substrate when it was contacted with the plating solution, the plating solution would be undesirably diluted and/or contaminated.

Art Unit: 1742

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WL

William Leader
July 5, 2005

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700